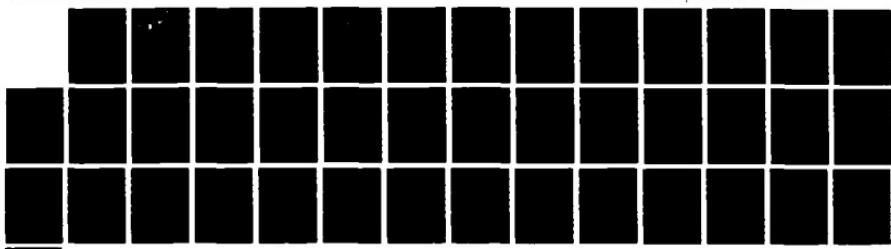


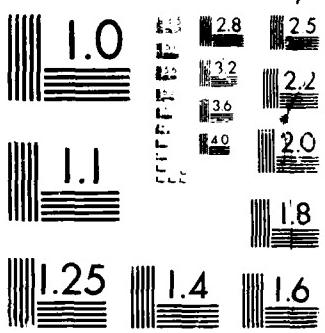
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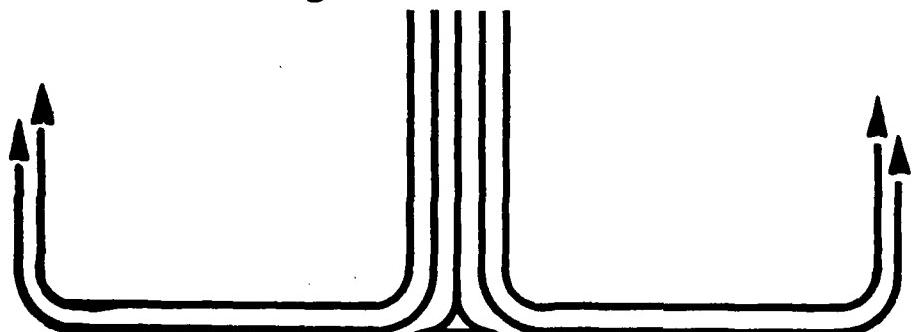


STUDENT REPORT

LOOKING FOR A FIGHT

MAJOR BARNEY A. GRIMES, III 88-1115
USMC

"insights into tomorrow"



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TITLE LOOKING FOR A FIGHT

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Submitted to the faculty in partial fulfillment of
requirements for graduation.

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PREFACE

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GLOSSARY

AA- air-to-air
AAA- anti-air artillery
AAI- air-to-air intercept
ACC- Army Component Commander
ACM- air combat maneuvering
AD- air defense
AFCC- Air Force Component Commander
AFM- Air Force Manual
AI- air intercept
AIM- air intercept missile
AR- anti-radiation
ASLT- assault
ATA- air-to-air
ATG- air-to-ground
BAI- battlefield air interdiction
BARCAP- barrier combat air patrol
CA- counter air
CAS- close air support
CIF- close-in-fires
CW- continuous wave
C3- command, control, and communications
DCA- defensive counter air
ECM- electronic countermeasures
FGTR- fighter
FM- Field Manual
GC- general command
GOF- general operating forces
GPS- global positioning system
HELCAP- helicopter combat air patrol
HUD- heads-up-display
INS- inertial navigation system
IR- infra-red
IRCM- infra-red countermeasures
JAAT- Joint air attack team

JCAT- Joint counter air team
JCS- Joint Chiefs of Staff
km- kilometer
km/h- kilometer per hour
m- meter
MAWTS- Marine Aviation Weapons and Tactics Squadron
MD- motorized division
MIG- MiGoyen(fixed wing fighters)
mm-millimeter
NATO- North Atlantic Treaty Organization
nmi- nautical mile
NOE- nose-of-the-earth
OCA- offensive counter air
OH- Operational Handbook
OMG- operational maneuver group
OODA- observe, orient, decision, and action
prt- pulse rate frequency
Pub- Publication
RA- Royal Army
RF- radio frequency
rds/min- rounds per minute
PWR- radar warning receiver
SA- surface-to-air
SAM- surface-to-air missile
SAR- search and rescue
SEAD- suppression of enemy air defenses
SP- spares
TECH- technician
TPT- transport
USA- U S Army
USAF- U S Air Force
USMC- U S Marine Corps
UV- ultra-violet
VIP- very important personnel



EXECUTIVE SUMMARY

Part of our College mission is distribution of the students' problem solving products to DoD sponsors and other interested agencies to enhance insight into contemporary, defense related issues. While the College has accepted this product as meeting academic requirements for graduation, the views and opinions expressed or implied are solely those of the author and should not be construed as carrying official sanction.

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REPORT NUMBER 88-1115

AUTHOR(S) MAJOR BARNEY A. GRIMES III

TITLE LOOKING FOR A FIGHT

I. Purpose: To investigate the current doctrinal and operational employment procedures for ATA helicopters that are envisioned in the USAF CA plan and AirLand Battle.

II. Problem: The U.S. Army has published FM 1-107, which delineates both the OCA and DCA operational and tactical use of ATA capable helicopters. The USAF has no published doctrine to integrate these assets into the Counter Air plan. Joint doctrine, JCS Pub. 26, represents helicopters as being used primarily in defensive counter air operations. The disparity between these three doctrinal sources needs to be resolved, better integrated, published and practiced to make AirLand Battle more effective.

III. Data: Soviet doctrine describes first, second, and deep strike operations becoming more reliant on armed helicopters. To escort these helicopters, a new fighter helicopter (HOKUM) has been developed with unconfirmed capabilities that pose a viable threat to fixed wing aircraft and an unmatched threat toward helicopters. The U.S. Army has published FM 1-107, Air-to-Air Combat to delineate Army doctrine on ATA tactics and operational use of ATA helicopters. The envisioned use includes OCA and DCA which is contrary to JCS Pub. 26, Joint Doctrine for Theater Counterair Operations. The potential threat capabilities cannot be equaled in the near future, and research of AFM 3-1 Series, Aircraft Operational Employment, does not discuss or illustrate these new threat capabilities nor how USAF aircraft will counter them. Since no joint level acceptance of ATA helicopter use in CA plan has been addressed, mutual support will be lost and potential of fratricide will be increased.

IV. Conclusions: The ATA helicopter offers a new CA platform for integration into the USAF CA plan. The currently published tactical and operational doctrine reflects no concern for the capabilities of threat ATA capable helicopters will enhance mutual support and decrease the potential for fratricide. The currently published U.S. Army tactical and limited operational doctrine provides no planning for procedural or doctrinal employment methods for interfacing or integrating ATA capable platforms into the USAF CA plan and minimal guidance for their CA use is given to support AirLand Battle though efforts are ongoing to correct this problem.

V. Recommendations: The USAF and U.S. Army need to publish joint planning and employment doctrine for ATA capable helicopter integration into the CA plan and AirLand Battle that is mutually supporting. The capabilities of the threat systems need to reviewed and republished. The new doctrine and threat assessment need to be verified and validated through wargaming and operational employment, then disseminated jointly for implementation and training. Both the USAF and USA should develop and employ a mission specific fighter helicopter to counter the current and future capabilities of threat helicopters and the evolutionary change to threat doctrine, employment, and deployment.

Chapter One

INTRODUCTION

BACKGROUND

Since the first operational flight made by the German F1 282 "Kolibri" in 1941 (4:27), helicopters have evolved from courier/observation aircraft into essentially all weather/mission aircraft. The stigma of VIP transport has been supplanted by the mystique of an air-to-air (ATA) capable platform "Looking for a Fight." The revelation on ATA capability is not new or unique for 1988. In 1972, "... a North Vietnamese AN-2, trying to bomb a place in Laos, was intercepted and shot down by an Air America UH-1 Huey" (35:8). The helicopter gunship and the advent of the high threat environment continue to create a growing dependence on helicopters to provide close in fires (CIF) and air support (CAS) for ground units. The sanctity of strictly USAF fixed wing missions continues to erode due to greater numbers of missions, the threat environment, and fewer aircraft to meet them. And though the range and speed are weaknesses of the helicopter, its maneuverability, flexibility, and survivability in the high threat environment theoretically deliver cost-effective high kill ratios to make up for the paucity of fixed wing assets. The effectiveness of the helicopter validated the army combat aviation use of the attack helicopter as a major force multiplier. Proliferation of these assets is naturally expected.

The threat is working hard to counteract the lethality of the helicopter. The threat is proliferating as well. The concept of contemporary Soviet combined-arms battle is optimized towards the conduct and winning of the operational level of war; in particular deep offensive military ground operations for which the armed helicopter is ideally suited (43:95; 47:583). The crucial operational level role of the helicopter in the combined-arms battlefield, be it the threat's, AirLand Battle or amphibious operations, portrays helicopter air combat as inevitable and necessary (18:--; 32:601; 40:46).

PURPOSE

The helicopter is now a new player in the concept of counter air (CA) operations (3:205; 18:--; 43:95; 45:58). What are the capabilities, characteristics, limitations, and envisioned employment of this asset? What needs to be done to effect its smooth transition into the ATA battle? The purpose of this paper is to answer these questions, to present what the threat may look like now and in the future, what we look like now and to propose several mechanisms to verify, validate, and facilitate our doctrinal development and employment to counter the helicopter ATA capability in CA warfare for the future.

Chapter Two

THREAT

"HOCUS-POCUS, BUNKUM" (7:396)

The tactical fixed wing and helicopter drivers are in for a real treat. What has a cruise speed of 190 kts (350km/h), dash to 250 kts (670km/h), has a radius of action of 135 nmi (250km), is 52.5 ft (16m) in fuselage length, has an armament suite probably consisting of a high rate of fire (>1600 rds/min) 23 or 30 mm cannon, all aspect ATA, infrared (IR), radio frequency(RF), and anti-radiation (AR) missiles, ballistic rockets, can live in the dirt, operate all-weather and know when you are around and where (3:198; 34:144; 32:602,9; 37:798-9) ? Why, the "HOKUM", of course. Besides the "HOKUM," the "HIND" and "HAVOC" with similar capabilities are also major theater platforms that will be encountered (2:96-7; 3:198; 45:59). Each of these platforms is ATA capable in the truest sense. Undoubtedly, having read our mail , the threat systems onboard also incorporate forward looking infrared radar (FLIR); inertial navigation/global positioning systems (INS/GPS); radar warning receivers (RWR) for lasers, pulse rate frequency/continuous wave (PRF/CW), Doppler shift, and ultra-violet (UV) transmitters; electronic countermeasures (ECM) and infrared countermeasures (IRCM) (23:31-2; 48:--; 50:49). In the ATA role, the gun systems besides having a high rate of fire use high energy ammunition coupled to heads up display (HUD) and a lead computing gunsight. The ballistic missiles are high velocity and indirect fire capable, similar to our Hydra 70. The ECM will have multiple target "ghosting" to defeat air intercept (AI) radar lock-on. Probable systems capabilities will also include active ATA interrogators (AAI) and passive vibration recognition systems. And, lastly the IR missiles will have radar slaving. For "HAVOC" (26:--; 37:--; 38:--) and "HOKUM" (37:--), excess power, rotor design, and flight characteristics probably incorporate agility and maneuverability.

characteristics at least equal to the roll rates of 60 to 100 deg/sec of the UH-60 and the S-76, a transient 'g' range of -0.5 to +4.0 and a steady state +2.5 to +3.0 'g' range close to cruise speed due in large part to their excess power and rotor system (27:471; 32:603; 39:2,10). And though maneuver in the vertical plane is not considered prudent due to ground air defense (AD), an occasional loop and Immelmann capability like the Messerschmitt-Bolkow-Blohm BO 105 helicopter (4:99) can prove useful against our fixed wing vertical attack profile (18:72). These potential and probable systems and capabilities are most disturbing-- most disturbing! That is the worse case picture of the threat capabilities and characteristics. Now, what about the friendlies?

Except for the 'g' loading, vertical plane maneuvering, and lead computing gunsight, we have most of what the threat has; of course, we do not have it all on one aircraft, unless you go to fixed wing aircraft. Herkening back to Harry Reasoner's commentary on pilots, one can see why "... helicopter pilots are brodders, introspective anticipators of trouble. They know if anything bad has not happened, it is about to".

What comes out as limitations for both sides from all this is that technology continues to expand the potential battle area in all dimensions (9:II-1; 27:--). Helicopter-to-helicopter and helicopter-to-fixed wing engagements can as a result be no more or less dangerous. Technology aside, it is the doctrine, planning, and training to counter the threat capabilities and characteristics that become the real limitations if not properly developed and executed.

DEVELOPMENT AND DOCTRINE

"Like tank battles of past wars, a future war between well equipped armies is bound to involve helicopter battles" (25:18).

As one of the major threat proponents of creating a substantial helicopter capability, Major General Belov expressed two viewpoints with regard to the operational development and doctrine for their employment. One viewpoint favors the creation of a general purpose vehicle capable of a multitude of missions (25:19; 46:--). The Mi-8 and Mi-24, as well as their

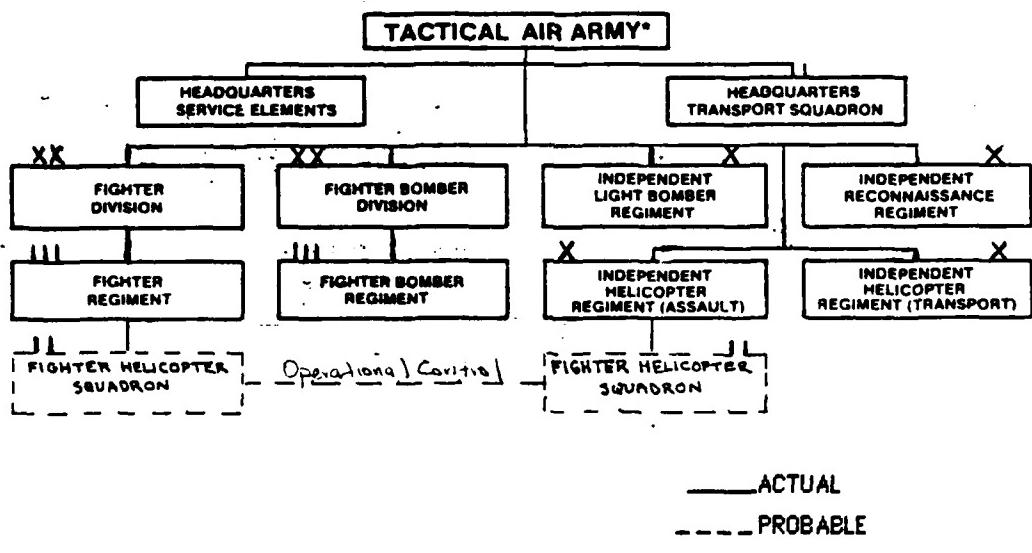
upgrades, Mi-17 and Mi-25 respectively, easily fill the bill. The second viewpoint for the not too distant future leads to mission differentiation and specific design where armed assault helicopters are used for fire support/ground attack and fighter helicopters are used for destroying enemy combat helicopters and other aerial targets (25:19; 47:584). The transition Mi-28 and as yet undesignated "HOKUM" appear to fill the second viewpoint requirements. The threat believes the former argument has proven that any multipurpose weapon loses its effectiveness on specific missions while specialization optimizes armament and tactics (25:18; 45:60; 47:584). But as with all Soviet systems, evolution in design and employment remains their steadfast doctrine. What the Soviets have done with this philosophy is resulting in much the same integration (first viewpoint) as done by the U.S. Army. However, if the threat's envisioned missions for helicopters of escorting land forces, destroying control points, nuclear weapon storage area attack, C3 installation seizure, and the attack of other helicopters on the ground is any indication, deep strikes and raids at the operational level by helicopters is imminent (25:19; 43:95). Those new tailored forces will have dedicated mission specific fighter helicopters. The shift in emphasis toward reliance on helicopters to meet these missions is shown in the table below.

Motorized wheel and track	Role	Rotor wing
1910	service support	1960
1920 (combat (tank) 1916)	combat support	1970
1940	small high-mobility manoeuvre force (Panzertruppe; Air Cavalry / Assault)	1990
1960	mobility base of main manoeuvre force	2000?
2000?	combat/service support and low-intensity ops only	

TABLE 1 Evolving Military Role Of The Rotary Wing (5:122)

This employment is also supported by the threat's own admission that one air assault brigade as an operational formation is equivalent to a tank division (5:120). With the advent of the ATA capability of the helicopter and the shift in emphasis toward mass employment, the nature of the Soviet

Tactical Air Army should evolve to include mission dedicated fighter helicopter squadrons both at the front level and most probably within the Independent Helicopter Regiment (Assault). Figure 1 portrays the probable command and control employment for these new units. The addition of fighter helicopter squadrons should be seen at both the Assault Regiment level(HAVOC) and the Fighter Division(HOKUM). The "HOKUM" should stay under the Front level command to ensure proper integration into the AD network, but under operational control of the Assault Regiment to ensure proper coordination with the ground scheme of maneuver. Figure 2 is specific to the "HAVOC" and the Assault Regiment and Figure 3 represents the probable employment of the "HOKUM" at the front level. Flight size and support units are derived from the schematics developed in FM 1-107, Air to Air Combat.

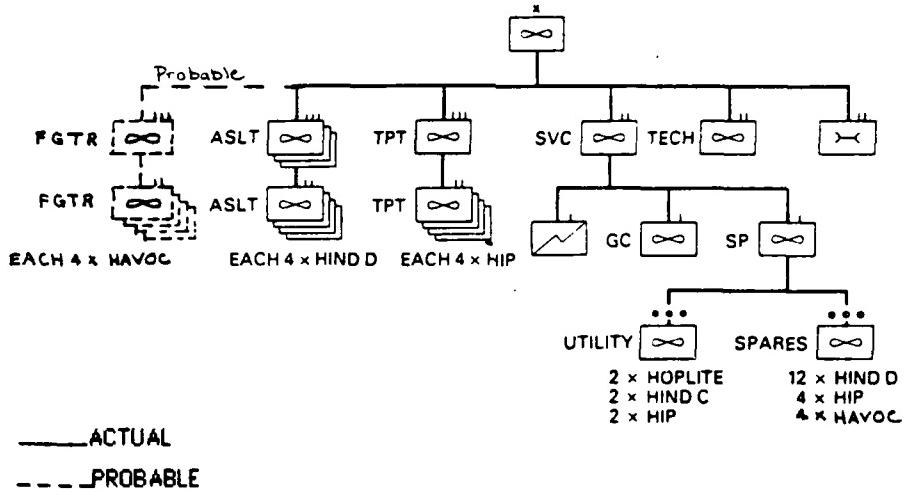


Principal Items of Equipment

Jet Fighters and Fighter Bombers.....	222	Medium Transport Helicopters.....	46
Jet Light Bombers.....	32	Heavy Transport Helicopters.....	16
Reconnaissance Aircraft.....	32	Attack Helicopters.....	80-96
Light Transport Aircraft.....	11	Other Aircraft.....	25

*The Tactical Air Army has no fixed organization and may be tailored to meet specific needs. Fighter and fighter bomber regiments normally have 37 aircraft.

Figure 1. Air Forces of the MD or GOF (front level) (18:11)



Approximate helicopter holdings (excluding brigade headquarters) -
 Mi-28 HAVOC 20, Mi-24 HIND D 60, Mi-8 HIP 20, Mi-24 HIND C 2, MI-2 HOPLITE 2, total 104

Figure 2. Independent Helicopter Regiment (Assault) Probable (5:120)

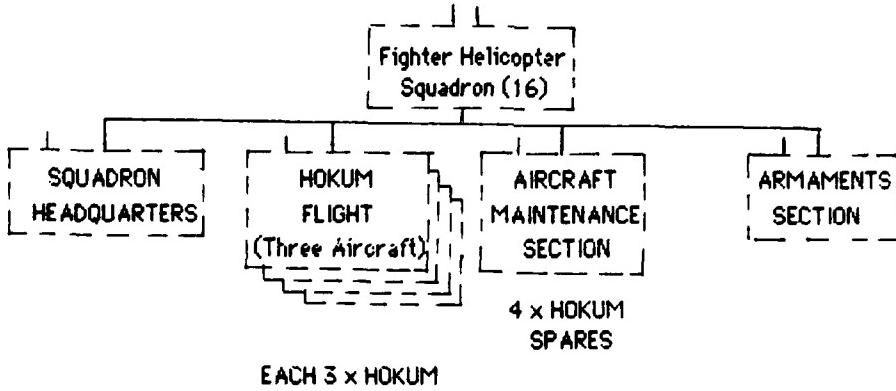


Figure 3. Fighter Helicopter Squadron (Front) Probable

As a result of their actual (solid line diagrams) and probable (dashed line diagrams) force structure, what do the Soviets see as their outstanding problems and future prospects with regard to armed helicopter development and employment in order to meet the above concepts and missions. Over ten years ago, Colonel General Mishuk first stated the operational requirements that needed to be met to make their helicopter force viable as a force multiplier. Those requirements and priorities were to be able to

1. combat tanks with helicopters,
2. combat enemy CAS and helicopters over the battlefield,
3. intercept and shoot down fast and low flying aircraft and cruise missiles,
4. perform airborne battlefield reconnaissance,
5. attack point targets on the battlefield, and
6. most importantly, develop avionics/sensors required in modern battle (26:1455).

In the last open report given in 1984, the Soviets have devised the means to satisfy the above six requirements but still suffer from

1. poor crew training,
2. helicopter vulnerability,
3. lack of assets to meet operational doctrine (front level),
4. high crew fatigue for crews working in the low-level flight regime,
5. poor air defense supply,
6. lack of air defense radar and anti-helicopter weapons for battalions on the move, and

7. poor ATA performance (30:566).

The prospects for the future as taken from open sources, however, foresee the replacement of their current assets with upgraded systems, development of battlefield drones, and continued improvement in night/all-weather capability (30:566; 31:--; 41:--). They also show more intensive all-weather training, better ATA performance and AD integration, greater survivability, more rapid replenishment, and expansion of the force structure to accommodate change, Figures 1 through 3. Referring again to Major General Belov, he reasserted that the biggest problem to the success of any Soviet offensive could be jeopardized unless helicopters are used in mass (3:193; 25:19). Add to this the recent indications of Soviet doubts about the all-weather capability of fixed wing aircraft (as opposed to helicopters) in the context of ground support (1:174; 44:--), and the impression becomes one of very great reliance. Lastly, the transition to "HIND" and "FROGFOOT" for CAS follows the espoused emphasis on air accompaniment vice air interdiction (3:186) with the residual fixed wing frontal aviation going back to deep air interdiction.

To the Soviets, all-weather capability is the objective, and the advantage of operating despite bad weather goes to the helicopter (44:--; 30:561). Other fundamental principles that favor the attack helicopter appear to be accurate target acquisition, surprise, and ordnance delivery at the lowest possible flight altitude (3:192; 6:62; 45:62). Additionally, survivability is maximized for single or multiple helicopter operations as compared to similar fixed wing operations (25:18; 34:142). From all the above espoused doctrine and developments, the Soviets are proliferating in mass. How will the Soviets employ these new capabilities?

DEFENSIVE EMPLOYMENT

As alluded to, the Soviet use of attack helicopters, like the U.S., is in direct support of ground units working from ambush, as a covering force, or flank-protection--all defensive employments. Besides meeting the ground threat, the Soviets see enemy armed helicopters and fixed wing aircraft that support the enemy attack as potential targets for Soviet ATA helicopters (45:62, 65:6). Further, Western employment would be offensive

as seen by the Soviets, seeking to penetrate gaps and strike Soviet forces in the flank or rear. The meeting of these flanking units will lead to ATA engagements. Some of the Soviet armed helicopters, in assuming a greater AD role against their NATO counterparts, will enter as dedicated ATA

capable platforms, flying barrier combat air patrol (BARCAP), intent on disrupting the fixed wing CAS attacking Soviet ground units (3:192; 45:62, 66). The Soviet ATA capable helicopter will probably be well practiced in augmenting the AD system since their value and integration are expected to be at the front level (45:66). To counter our advancing attack helicopters, a helicopter combat air patrol (HELCAP) can also be expected to be employed. Just as we echelon in depth, we can expect to encounter their echelons.

OFFENSIVE EMPLOYMENT

From defensive to offensive, the Soviet operational employment across the front envisions tactics of first echelon--fix and hold; second echelon--penetrate; and deep attack by Corps level operational maneuver groups (OMG)--to disrupt and confuse the rear areas. It would not be until after the first echelon "fire storm" that helicopters would typically appear (1:175; 18:17; 45:62-4). The Soviet front commander would then seek to use his attack helicopters in a way that would develop, maintain, and sustain the offensive momentum (1:198; 45:60, 68). Again, the helicopters will provide extensive flank protection, CIFS, CAS, interdiction and all functions of counter air. Complementing the OMG, helitroops would be used to establish operational airheads as a base for further mobile actions and final link-up with airborne troops establishing strategic airheads (5:101; 29:1186).

At the operational level, helicopter or missile supporting fire would normally be expected to assist heliborne troops (OMG elements) before the enemy has time to destroy the landing unit (3:197; 29:1186; 45:64-5). ATA helicopters would also be attached to screen and protect the link-up. The OMG tasked to complete the link-up and ultimately disrupt deep rear areas (3:212, 219; 6:186, 198; 29:1182; 45:64-5), while advancing at high rates (up to 100 km/day), will be extensively resupplied by helicopters operating from main force areas or within the OMG. Use of the helicopter to sustain the OMG's mobility will be crucial as well, and for the Soviets is the only

present vehicle that can satisfy the OMG's needs in a timely, flexible, and massive way.

To go down one step further to the tactical level development and employment, the Soviet's new focus on transitioning their forces from extremely tank heavy to the main battle air vehicle (5:121-7, 32:601; 44:--), sees increased use of helicopters for CAS of high speed offensive and flexible tactics, which artillery, even self-propelled (SP) artillery, cannot support. The smaller maneuver unit *desanty* (3:196-7; 6:175-6; 28:771, 773; 29:1186) with integral fire support, has become more dependent on the helicopter. And the use of helicopters in general support of the offensive, both logistically and through fire support, assault/transport, and C3, all under bad visibility conditions, further portends substantial proliferation of helicopter forces. Accidents of terrain will not constrain tactical boundaries when using helicopters but will open operational boundaries (29:1181) and increase the fluidity of battle. Problematically, the increase to meet these needs developmentally and doctrinally are going to introduce an unsettling, evolutionary change for the Soviets, a change in force structure which NATO or the U.S. cannot match, even with AirLand Battle. Nonetheless, it is a change the Soviets appear to be willing to make.

FUTURE EMPLOYMENT

The key to assessing the threat's introduction of an ATA helicopter is obviously couched in the final form of operational level use. The three methods of deployment envisioned for the new helicopter capabilities are: front level OMG use or integrated with an OMG as a subunit raiding group, traveling with the main body forces and operating from bases within the main force and commuting to the battle zone; or what undoubtedly will be the preferred method, combining initial main force operations with a relocation to OMG's whenever possible (6:177; 27:546; 45:68). To reiterate, though no rule has yet been laid down using Soviet methodology, the above discussed employment leads one to believe the Soviet force structure, Figures 1 through 3, will change to accommodate these new tactics and capabilities.

Looking at the actual force structure, in view of recent years, the new types of helicopters (upgrades, HAVOC, HOKUM, etc.) as well as the ever-increasing numbers and their forward deployment, show the following two organizations evolving significantly. One can conjecture that the present Air Assault Brigades, shown in Figure 1 (solid line diagrams), which have appeared in all the front sized forces along with integral divisional helicopter squadrons, Figure 2 (solid line diagrams) (3:189, 219; 28:774), will upscale to front level Air Assault Divisions and divisional air regiments.

While it is possible that the new threat helicopter like the "HOKUM" may be incorporated to meet the roles and missions of its forebears, Soviet practice would allow this helicopter to evolve (3:219; 29:1181). Specifically, the ATA helicopter would be directly integrated into the existing front level AD system of surface-to-air missiles (SAM's), anti-air artillery (AAA), radars, and fixed wing fighters, Figure 1 and Figure 3 (dashed line diagrams) (28:776; 45:66). As a novel approach, the retention of "HOKUM" with frontal aviation assets would permit greater coverage, centralized command of all-assigned AD assets, and minimal impingement at the Combined Arms or Tank Army levels (45:66), something vaguely similar to USAF doctrinal employment of counter air.

The next logical step after proof of concept and employment validation of "HOKUM" within the AD system could then be simultaneous distribution to lower echelons and ultimate divisional control (45:66) shifting Figure 3 over to Figure 2, thereby placing all fighter helicopters under both the command and control of the Air Assault Division Commander.

To offer final credence to the near term appearance and integration of a mission specific ATA helicopter, it comes from observing the newest conversion on the "HIND". The change from 23 mm flexgun to fixed 30 mm cannon, a net decrease in ATA capability, is an unlikely devolutionary step for the Soviets (43:95; 45:67) unless a substitute is on the way. Also, reports about attack helicopter "free hunt operations" becoming a standard operational-tactical practice confirms a more enlightened approach to battlefield air interdiction (BAI) (3:191, 206).

For the Soviets, "... therefore it has become vital to get a weapon which can compete with the helicopter in respect to combat power, tactical

possibilities," etc. Logic and historical experience suggest that such a weapon is the helicopter itself." (25:18) In view of the upcoming Soviet changes expressed above, what is our current doctrine and employment to counter the threat and what direction are we headed?

Chapter Three

FRIENDLY

EMPLOYMENT

The doctrinal counter air role for armed U.S. helicopter use is founded in JCS, Pub. 26, Joint Doctrine for Theater Counterair Operations (9:III-1-3). Aircraft provide the major battle force for offensive counter air (OCA) and as a weapon system are a resource for defensive counter air (DCA) (9:IV-3;V-4). Specifically, however, armed helicopters are seen as integral to the maneuver operations of land combined arms forces and may be required to engage enemy air forces in ATA combat to protect themselves (essentially defensive in character) (9:V-10). Even though the resource is engaged on the ground, helicopter use is envisioned to complement the theater counter air campaign throughout the depth of the battlefield. The emphasis still remains on completing the primary ground support mission, so the traditional USAF doctrine of OCA (9:IV-3) remains an implied mission for the helicopter, dependent on forces and systems available and their particular capabilities. DCA is an explicit doctrine for armed helicopters (9:V-10). As an adjunct to OCA and DCA, helicopter suppression of enemy air defenses (SEAD) is also realizable when tied to U.S. Army "QUICK FIX" and anti-radiation missiles like the "SIDEAPM" which can be employed from helicopters using Joint SEAD doctrinal employment(9:VI-2; 22:17, 20)

The next doctrinal step down goes through USAF basic doctrine AFM 1-1, which in Operations, Missions, and Supporting Tasks sections reiterates much of its forerunner, JCS, Pub. 26. At the operational doctrine level, the first real deployment operationalization takes place in AFM 2-1, Tactical Air Operations-Counter Air, Close Air Support and Air Interdiction and the new AFM 2-XC. Except for the employment characteristic of limited range, the functions, principles, tasks, effects, and planning of tactical air forces fully apply to helicopters, but the USAF implication is that it does

not apply to helicopters. One editorial note would also exclude the reference to extreme vulnerability of air mobile forces in view of the above discussed threat capabilities (12:4-3). The transition from USAF to U.S. Army doctrine on employment begins to diverge at the operational level however, in large part due to differences in command and control. The major difference is evinced in the division of labor between the Air Force Component Commander (AFCC) and the Army Component Commander (ACC) (8:7-8; 11:1-3,2-2; 12:2-3; 13:3-4; 14:1-1, 2; 15:2-1, 2, CH3; 16:4-12, 4-14; 19:50, 52).

In the Army's view, FM 1-107, Air-to-Air Combat, the JCS implied OCA doctrine becomes the Army's explicit doctrine (18:3-4). As an aside here, the tack taken by the U.S. Navy/USMC goes the traditional way of JCS, Pub. 26, envisioning employment defensively (20:2-2). What's curious about all this is how the Army is going to interface with the USAF. In terms of references, background, tactical employment, etc., nothing currently available interfaces the Army's concept of ATA with the USAF's concept of CA, whereas the USMC uses OH 5-5, Anti-Air Warfare, to effect its operational and tactical interface with the Navy. As has been pointed out, there are a lot of loaded guns (armed helicopters) out there. Some of these helicopters are going to be tied into the AD system, but coordination between fixed wing and helicopters in the USAF CA sense appears untreated or extremely limited at best, while all the other defensive ATA helos are under control of the supported ground units. In either of these cases, fratricide is likely and probably will occur.

The last area of doctrinal review concerns the USAF operational and tactical employment of specific systems and planning for CA. There is going to be a new and different CA fight at low to very low altitudes (500 ft ASL to the surface). Many of these fights will be a melee which increases the risks of fratricide. With the exception of helicopter use for search and rescue (SAR), A-10 joint air attack, and slow moving target tactical engagement, no mention is made in any of the AFM 3-1 Series about actual counter air capable helicopters, theirs or ours. Fixed wing escort missions of helicopters are portrayed as mass assemblages predictably air assaulting over terrain instead of the multiple small formation nap-of-the-earth (NOE) convergences on an objective. Column cover of ground units says nothing about unexpected armed helicopter forays (hit-and-run, a Soviet favorite).

And going the next step, how fixed wing low flight into an ATA helicopter barrage (HELCAP or BARCAP) will be defeated. (You can buy three helicopters for the price of one fixed wing). Another more radical idea not addressed is our use of ATA helicopters to assist in cruise missile intercept or slow-fast counter threat integration with mini-AWACS F-15s or even standard AWACS. The most lethal aspect of these ideas and concepts is countering helicopters in night/marginal weather, and an environment which makes use of maximum degradation of fixed wing systems and equipment. As is apparent, the list goes on.

There are some answers to these deficits. The air-to-air mission tasks of detection, committal, engagement, and withdrawal can be accomplished with varying effectiveness by different types of aircraft. The A-10 AFM 3-1 does offer some operational DCA employment against armed helicopters. This is good, but what about nighttime? When working A-10 four-ship operations, with two planes air-to-ground (ATG) and two planes standby ATA, will the screening/observation scouts get out of the way or be integrated (counter barrage) into the ATA engagement? How will this scheme work? The A-10 may have excellent low altitude performance and the A-10 pilot has a significant ATA capability with AIM-9, but the A-10 is also a very hot source and very vulnerable to a masking/unmasking threat helicopter using AA-8 APHIDS or SA 7/14 GRAILS from a standoff range of 3-5 km. And with published tactics as they are, he who sees and shoots first will probably get the kill (18:32; 32:32) because of the lethality of the AIM 9 or equivalent. It cannot be said enough that a new asset for low altitude CA missions is here. That asset is lethal and deployable at least 75 percent of the time in Europe (36:404; 51:29). The A-10 AFM 3-1 is a good and probably the best place to start, since it already has extensive experience with Joint Air Attack Teams (JAAT). Evolution to Joint Counter Air Teams (JCAT) may be what comes next or hope against hope the USAF creation of dedicated fighter helicopters for rear area (base defense) and close-in operations that are commanded and controlled by the AFCC. These fighter helicopters should be Air Force owned so that critically needed Army Aviation assets which are vitally needed to support close-in or deep battle ground operations are not drawn down. These are several and many of the most critical shortfalls to our employment doctrine. By comparison, we are neither ahead or behind the Soviets in doctrine, development, or employment. The conclusions that follow are directed at our future deployment needs. Hopefully, we can move from top-dead center and make

the recommendations work too.

Chapter Four

CONCLUSIONS

What has been attempted in this paper is an explanation of doctrinal operational employment of ATA helicopters, where the threat is and is going, where we are and where we are going. In addition, numerous conclusions can be drawn from the aforementioned descriptions. These conclusions are not all inclusive. If what Sir Bernard Montgomery said is correct, "A ground commander can no more control air forces than an air commander can control ground forces," then jointness is going to play a very big part in integrating ATA capable helicopters into the USAF CA plan. It is obvious that the USAF has primary cognizance over orchestrating these assets to saturate, deceive, and/or degrade the enemy's defenses, accentuating our strengths and the threat's weaknesses, so each aircraft and system is properly employed to gain control of the air. The patterns of conflict are clear-I see, I position, I attack, I destroy (Boyd's Law on Decision- OODA Loop). With ATA capable helicopters, that decision loop has gotten smaller.

To reiterate the specific conclusions to be drawn from this paper, they are that:

1. ATA helicopters are here, the threat believes in them and we believe in them.
2. The Soviets are using and growing more dependent on helicopters for CAS and as supplemental fire support to augment artillery.
3. The Soviets are proliferating and new force structures and capabilities will soon appear.

4. The armed helicopter will be used in deep attacks and rear area operations for disruption/confusion.
5. ATA combat with helicopters will happen.
6. The Soviets are transitioning to a more mission specific aircraft as a result of their doctrinal evolutionary thinking.
7. We have both the Joint and USAF fundamental doctrine to integrate ATA helicopters.
8. Joint doctrine should be explicit about OCA helicopters.
9. The USAF OCA helicopter operational and tactical doctrine is non-existent.
10. The USA is doctrinally unprepared for ATA helicopter integration into the operational and tactical level of USAF CA.
11. The USA has been explicit about some of the tactical use of CA helicopters.

In the name of jointness and to preclude another dispute about centralized command and control and decentralized execution, the above problems and conclusions are offered. Tough talk and not turf talk will solve them. The recommendations below are suggested starting points

Chapter Five

RECOMMENDATIONS

Many of the mechanisms are in place to address and solve the problems and conclusions offered above. By no means are these all-inclusive nor are they meant to be a panacea. What is intended is an attack on parochialism and an awakening to change. As anyone who flies fixed wing fighters or attack aircraft will attest, put a gun or a missile on it and it's capable and likely to go "Looking for a Fight." Those long-frustrated helicopter drivers are now ATA capable and the threat's helicopter pilots are transitioned MIG pilots to boot. We have over 70 years' experience with ATA combat and the USAF now has the chance to pass on knowledge and experience to facilitate integration and steepen the learning curve.

The recommendations are for the USAF to:

1. redefine the word fighter to include fighter helicopters
2. create a planning doctrine to integrate properly the ATA helicopter with fixed wing CA and AD.
3. develop and use the AFM 3-1 Series for establishment of Fighter Helicopter procedures.
4. assess the threat capabilities and tactics, then assess friendly capabilities and tactics and create doctrine to the worst case level
5. update AFM 3-1 Series doctrinal employment on ATA helicopters with ATA missiles and guns to include engagement envelopes and kill probabilities for single and multi-ship operations

6. determine if the USAF needs its own ATA helicopters to meet the very low altitude CA missions in view of the best kill argument.

7. develop "playbooks" or packages for helicopter CA use

For the U.S. Army to:

1. further develop U.S. Army tactical and operational employment doctrine that is helicopter specific and publish it as an AFM/FM 3-1 Series.

For both services to:

1. create a joint CA team concept similar to JAAT, but procedurally documented like the AFM 3-1 Series.

2. exercise coordinated teams against threat AD and CA systems to verify essential elements of coordination and determine if/how helicopter ATA capabilities can enhance fixed wing CA employment.

3. establish training implementation procedures after verification and validation of doctrine and then train to the threat.

4. develop and deploy their own fighter helicopters as soon as possible.

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